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EXAMINER	
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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/048,012
Filing Date: January 25, 2002
Appellant(s): SAEKI ET AL.

Glenn J. Perry
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed August 7, 2006 appealing from the Office action mailed June 15, 2005.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

US 4,681,506	July 21,1987	Teramachi
US 5,040,431	August 20,1991	Sakino et al
US 5,733,096	March 31,1998	Van Doren et al
US 5,844,662	December 1, 1998	Akimoto et al
US 6,257,827	July 10, 2001	Hendrickson et al

(9) Grounds of Rejection

The following grounds of rejection are applicable to the appealed claims:

Claims 1 and 7 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hendrickson et al in view of Van Doren et al. Figures 2 and 3 of Hendrickson et al show the basic claimed transfer system for transferring an object (a wafer) to be processed out of a carrier (cassette 73) which is provided on a top face of a load port unit (cassette holder 72 located in frame 68) and for transferring the object to the carrier (cassette 73), the system comprising:

a system body (the chamber housing the robot 76) having a bottom, a front wall (the left wall along the frame 68, see figure 3) vertical with respect to the bottom, and a guide rail (adjacent car 74) provided as to extend in lateral directions of the system body;

a transfer robot (robot 76) which is capable of linearly reciprocating along the guide rail;

wherein both the load port unit (72) and the guide rail are mounted on the front wall of the system body, the load port unit (68/73) is mounted on the outside of the front wall of the system body and the guide rail is mounted on inside of the front wall of the system body, and

the transfer robot (76) transfers the object from and to the carrier positioned on the top face of the load port unit (in frame 68).

Hendrickson et al varies the claims by not showing the device that moves the transfer robot (76) in the direction indicated by arrow X in figure 2, as to not have the linear motor recited in claim 1.

Figure 30 of Van Doren et al shows a similar wafer transferring robot comprising:

a system body having a vertical wall with a guide rail (152) provided as to extend in lateral directions of the system body;

a linear motor having a secondary side (154) provided as to extend in lateral directions of the system body and a primary side (156) movable to the secondary side; and

a transfer robot (10) which is mounted on the primary side of the linear motor and which is capable of linearly reciprocating along the guide rail (152).

It would have been obvious to one of ordinary skill in the art at the time the invention was made by applicant to modify the transfer system of Hendrickson et al by having the X direction movement of robot (76) include a wall mounted linear motor, for accurate positioning of the robot, as taught by Van Doren et al. Having this linear motor with its secondary side (154)

mounted on the front side of the system body, i.e., the load port unit (68) side of the robot (76), would have been an obvious choice of design which would have been within the limits of one with ordinary skill in the art at the time the invention was made by applicant. Hendrickson et al has processing means (processing modules 54), as recited in claim 7.

Claims 2 and 3 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hendrickson et al in view of Van Doren et al, as applied above to claim 1, and further in view of Akimoto et al. Hendrickson et al, as modified, shows the basic claimed transfer system, but varies from the claims by not showing a clean air system for the system body. Figure 3 of Akimoto et al shows a similar system with a transfer robot with a system body having upper and lower fan systems (64 and 67). It would have been obvious to one of ordinary skill in the art at the time the invention was made by applicant to provide the system body of Hendrickson et al with a clean air supply system and an exhaust system, to eliminate particles in the body, as taught by Akimoto et al.

Claims 4 and 6 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hendrickson et al in view of Van Doren et al, as applied above to claim 1, and further in view of Teramachi or Sakino et al. Hendrickson et al, as modified, shows the basic claimed transfer system, but varies from the claims by not having a brake for the linear motor. Teramachi shows a similar linear motor positioning device with a brake (13) controlled by an electromagnetic coil (15) and opposing spring (16). Sakino et al shows a similar linear motor positioning system with brake controlled by leaf springs (108) and electromagnetic coil (126). It would have been obvious to one of ordinary skill in the art at the time the invention was made by applicant to provide the linear motor positioning drive or body of Hendrickson et al with brake system, for automatically locking the drive in place due to a power loss or an emergency actuation, as taught by Teramachi or as taught by Sakino et al.

(10) Response to Arguments

Appellant agues in the first paragraph on page 10, beginning at line 17 of the brief that the "prior art does not teach fixing the guide rails and the load port unit to the same structure so that they are fixed with respect to each other". This is not true as Figure 3 of Hendrickson et al (the real figure 3 of Hendrickson et al; not the drawing on page 11 of appellant's brief which is figure 3A which has been altered by appellant by changing the drawing figure number) shows unlabeled elements on each side of transport mechanism 70 supporting car 74. One of the unlabeled

elements is between the robot 76 and the frame 68 which housing load port units 72 The specification of Hendrickson et al, at column 4, lines 29-31 states:

> The transport mechanism 70 includes a car 74 movably mounted on rails of the frame 68 for linear movement on the rails as indicated by arrow X.

Furthermore the Van Doren reference has guide rails (150 and 152) on both sides of its transport robot, see figure 30. It is not understood as to how appellant can argue a lack of a showing of guide rail mountings on a robot front face, when both references have robots with rails on their front faces and their rear faces.

Appellant argues in the last five lines of page 10 through the top three lines of page 11 of the brief that the "Examiner suggests further modifying these combined teachings based upon design choice" stating that this is an admission that combining the teachings of Hendrickson et al and Van Doren et al alone do not meet the limitations of claim 1. However the limitation being addressed with the "choice of design" statement in the rejection refers to the placement or arrangement of the two elements of the linear motor. It is not really a further modification. It states that when incorporating a linear motor onto the wafer robot of Hendrickson et al, it is not critical as to which side the of the robot, the front or the rear side, has the linear motor mounted thereto, and that it is not critical as which part of the linear motor, the primary side or the secondary side is mounted to the robot and which part is mounted to the adjacent supporting wall. It is unclear as to how appellant can challenge this statement and argue that the claimed the placement of the elements is critical, when appellant's specification contradicts this argument. See page 12, lines 21-31 of appellant's specification, which states:

> In this preferred embodiment, the secondary side 11 of the linear motor M is mounted inside of the front wall 1a of the system body 1, and the primary side 12 is movable. However, the linear motor M may be reversely mounted in view of the structure of the linear motor M, i.e., the primary side 12 may be mounted inside of the front wall la of the system body 1, and the secondary side 11 may be movable. In this preferred embodiment, the linear motor M is mounted on the front wall 1a of the system body 1. However, the linear motor M may be mounted on the back wall 1b of the system body 1 although there is the above described problem on the precision of position.

Appellant's specification acknowledges that are four manners in which the primary side element and the secondary side element of a linear motor can be arranged when being attached to a robot, and that all four manners are recognized as equivalents. Therefore placing the secondary side of the linear motor on the system body would not be a critical patentable distinction.

Furthermore, the Van Doren reference also teaches this to some degree, as it has its primary side mounted to the robot.

Appellant argues beginning at the fourth line of page 11 through most of page 12 of the brief, that the "Examiner asserts that Hendrickson teaches a system having both the load port unit (72) and the guide rail mounted on the front wall (68) of the system body" and discusses Hendrickson et al using two drawing figures from the reference. However the drawing figure which appellant has mislabeled as "Hedrickson Figure 3" is in fact figure 3A. Column 5, lines 28 and 29 state:

> Referring also to FIGS. 3A and 3B, two alternate embodiments of the substrate supply section are shown.....

Thus the drawing appellant is relying upon in the arguments shows a different embodiment from the real drawing figure 3 used in the rejections. The real figure 3 shows the rails but does not identify them with reference numerals. And, as discussed in the first quotation above from the specification of Hendrickson et al, the reference states that supporting car (74) has rails (plural), as to one of ordinary skill the art recognize that the two square elements shown to the right and to the left of car (74) are schematic showings of rails which support the car.

Appellant argues, at the end of the argument issue # 1 of the brief, that "in our claimed arrangement, carrier (C) is mounted on the top face of the load port unit (L) and does not move with respect to the load port unit (L)" and that "These features are neither taught or fairly suggested by Hendrickson et al or Van Doren". However these features are not claimed by appellant either. And even if a non-moving load port were recited in the claims, Hendrickson et al would have this feature, as the load port is the enclosure for the cassette holders (72), not the holders themselves. A port is an opening through which wafers are passed, or, an enclosure at such an opening.

Appellant argues issue #2 at the bottom of page 12 of the brief by stating that the reference of Akimoto et al does not overcome the alleged deficiencies of Hendrickson et al and Van Doren, as to acquiesce that adding a conventional clean air system into the robot chamber would have been obvious to one of ordinary skill in the art at the time the invention was made by applicant. Van Doren et al. Appellant just repeats the statement that the "cited references simply to not suggest a transfer system having a carrier that is mounted on the top face of the load port unit

wherein the carrier remains stationary". However, Hendrickson et al does have the first portion of that statement, as it has it a carrier (wafer carrying cassette 73) that is mounted on the top face of the load port unit (wafer cassette holder 72), and it does have the second part of the statement, as it has a stationary load port, the stationary enclosure (the portion of frame 68 enclosing the cassette holder 72), even if the second half of the statement was a claim limitation.

Appellant argues issue #3 at page 13 of the brief by stating that the references of Teramachi and Sakino et al do not overcome the alleged deficiencies of Hendrickson et al and Van Doren, as to acquiesce that adding a safety braking system to a linear motor would have been obvious to one of ordinary skill in the art at the time the invention was made by applicant.

In conclusion, the primary reference of Hendrickson shows a robot (76) mounted on rails to move along a front wall of its enclosure which is a common wall of frame (68) which is a load port having cassette holders (72). As shown in figure 2, the robot moves linearly, as indicated by arrow X by an unspecified drive means. Using a conventional linear motor for this unspecified drive means would have been obvious to one of ordinary skill in the art at the time the invention was made by applicant in light of the teachings of the secondary reference of Van Doren et al which includes drawing figures 30 and 31 showing a robot that is identical to the robot of Hendrickson being moved by a linear motor.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

10/10/06

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Art Unit 3654

Conferees:

KAM

DWU